WRITTEN TESTIMONY

OF

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Thank you, Chairwomen Sherrill and Stevens, for inviting Michigan to provide testimony regarding the ongoing work of our Michigan PFAS Action Response Team (MPART) to address Per and Polyfluoroalkyl Substances, PFAS, issues across our state. My name is Abigail Hendershott, and I am the Executive Director of the Michigan PFAS Action Response Team, MPART. I am pleased to share with you the Michigan perspective on research needs, opportunities to collaborate with state governments and non-government entities, and our needs for the development of new treatment technologies for PFAS.

The Michigan PFAS Action Response Team was created in 2017, as a temporary body by executive directive, to investigate sources and locations of PFAS and protect drinking water and public health. On February 4, 2019, Governor Gretchen Whitmer signed **Executive Order 2019-3**, establishing MPART as an enduring body to address the threat of PFAS contamination in Michigan, protect public health, and ensure the safety of Michigan's land, air, and water, while facilitating inter-agency coordination, increasing transparency, and requiring clear standards to ensure accountability.

Since 2017, MPART has solidified its role as a national leader in identifying and addressing PFAS contamination by the coordinated activities of seven different state agencies. This coordination and collaboration have allowed Michigan to effectively leverage the actions of all agencies to swiftly identify and respond to PFAS in our communities. These department agencies include Environment, Natural Resources, Transportation, Agriculture, Public Health, State Fire Marshal, and Military Affairs, all of which have teams of staff dedicated to continuously address PFAS issues. MPART currently has over 200 staff working on PFAS, many of whom are serving on committees that collaborate at a national level, including ITRC, ECOS, Great Lakes PFAS Task Force and many others.

The MPART strategic efforts are first and foremost focused on the protection of public health through sampling of drinking water and the identification and remediation of sources of PFAS contamination. As Michigan began to identify communities in need of alternate water supplies due to PFAS contamination of groundwater, surface water, and soils, the need for health-based cleanup standards became critical.

Using the expertise within the State and supported by national experts, Michigan took on the challenge of addressing PFAS in the absence of any existing PFAS standards. Michigan developed water quality standards for PFOA and PFOS,[1] and in January 2018, Michigan established groundwater cleanup standards for PFOA and PFOS. These enforceable standards laid the foundation for Michigan to require action to protect human health and the environment. In August 2020, EGLE completed promulgation of drinking water standards under the Safe Drinking Water Act for 7 PFAS compounds. Michigan also recognizes that additional research and improved techniques for reducing PFAS in our environment are necessary to enable Michigan, and all states, to effectively reduce the risks of PFAS.

While Michigan is actively requiring treatment and cleanup of PFAS contamination in groundwater, surface water discharges, and drinking water supplies, there is more to be done. MPART is encouraged by the actions laid out in the EPA PFAS Roadmap and the goals for coordinated and cooperative cross-agency efforts to develop improved tools to address PFAS as announced by the Biden Administration in October. A national, science-driven effort to support states and communities dealing with PFAS contamination will help to bring additional knowledge and support to PFAS investigations and cleanups and will ease the burden on states to develop state standards for drinking water and groundwater, as Michigan has done. Expanded, cross-agency research into PFAS remediation and treatment technologies, as well as investigation and guidance regarding PFAS in the food supply, will also help states better protect residents, consumers and producers.

The announcements regarding federal efforts to improve the understanding of how PFAS impacts the environment and human health are encouraging for states like Michigan and our fellow Great Lakes States that are already hard at work to conduct needed research with limited resources. Michigan urges all federal agencies working on furthering the understanding of PFAS to coordinate with states to maximize the impact and utility of federal PFAS research and synergize the response actions across our country. Michigan also urges Federal agencies that have PFAS contaminated properties to be leaders for the nation by expeditiously cleaning up these sites – even in the absence of perfect science. We cannot let imperfect information hold up the responsibility of protecting our citizens and natural resources today.

While there are numerous research and development areas where federal funding and studies will be helpful, I want to highlight a few examples of real-world areas where focused research and development can have a real benefit in Michigan and all states.

[1] PFOA is perfluorooctanoic acid and PFOS is perfluorooctanesulfonic acid

Research on Food Supply Impacts/Risks

First, there is a real need for additional studies of PFAS in the food supply to understand how PFAS enters and affects the food supply, and potential health risks from PFAS in food. Standardized testing methods are needed for crops, livestock, and food products to provide producers and consumers with useful and consistent information and to build the data set needed to begin establishing health-based standards for food. Consumers, farmers, state and federal regulators, and health agencies will all benefit from the development of health-based standards for PFAS in food.

Research and further evaluation of PFAS impacts to the food chain cycle, specifically bioaccumulation and biomagnification, is also needed. For example, wildlife and cattle may come into contact with PFAS by grazing on PFAS-contaminated fields and consuming PFAS-contaminated organisms. Also, fish are impacted by PFAS contamination in sediments and surface waters. While Michigan is working with other states and federal agencies to develop best practices for sampling and determining the presence of PFAS in livestock and wildlife, more studies are needed to determine how PFAS enters the food supply and to develop effective ways to protect the food supply.

An issue that goes hand-in-hand with evaluation of risks in the food supply is the need for a deeper understanding of the fate and transport of PFAS in the environment – how PFAS moves within and through the environment and the food chain. Understanding PFAS fate and transport is crucial to a complete understanding of the risks related to human consumption and to sensitive and threatened species. Additional research on how various PFAS are bioaccumulated and passed through the food chain is vitally important for a full assessment of the potential risk to various populations worldwide.

Development of Less Toxic AFFF

Second, the use of PFAS-containing firefighting foam, also known as aqueous film forming foam, or AFFF, results in dispersal of PFAS into the air, surface waters, soil, and groundwater. As long as military, airport, and civilian fire departments use PFAS-containing AFFF, these negative consequences will continue to impact surrounding communities, particularly in areas where residents rely on groundwater as a source of drinking water.

Federal support for research already underway to develop less toxic but still effective AFFF is essential to reducing harm from PFAS. Michigan urges the committees to consider all means to increase the incentives and resources available to researchers within the government and in the private sector. We must ensure that the next generation of AFFF products are less toxic to the environment, and meet appropriate firefighting standards for smothering fires, blanketing fuel, and ease of use.

Improved PFAS Remediation and Treatment Technologies

As Michigan tackles the job of identifying sites of PFAS contamination, the even larger challenge is identifying a cost-effective way of remediating the PFAS-impacted groundwater, soils, and sediments in place without large removal efforts.

In Michigan, historic industrial use of PFAS and use of AFFF over large areas, such as military, industrial and airport properties, has resulted in large areas of land and groundwater in need of remediation. Taking just one example specific to Michigan, a single former automotive manufacturing site has 2.5 miles of riverfront property highly impacted with PFAS, an estimated 10 million gallons of PFAS-contaminated groundwater that needs to be addressed, and over 150,000 cubic yards of PFAS-contaminated soil that needs to be contained or otherwise remediated at this site alone.

There is a pressing need to develop cost-effective ways to remediate--or at least sequester--PFAS found in soil to decrease the potential for contaminating groundwater. It is known that PFAS leaches from soil into groundwater, but the rates and processes by which this occurs, and the most effective means of preventing ongoing contamination, are not thoroughly understood. Michigan and other states are using existing technologies such as pump-and-treat combined with granular activated carbon and resin, but these treatment methods are costly on a large scale. While these technologies effectively remove PFAS from water, the captured PFAS is not destroyed and still must be handled and disposed of in a way that is protective of human health and the environment.

Michigan supports development of new and improved remediation techniques to enable long-term, cost-effective treatment of PFAS, including sequestration, foam fractionation, and destruction technologies. For our Great Lakes State, the remediation of our water is critical to the well-being of our ecosystem and the well-being of our communities and economy.

Continued Research to Understand PFAS Toxicology

It is well established that exposure to PFAS is associated with adverse health impacts. In Michigan, we are pursuing community-based health studies[2] to take this knowledge farther by identifying links between exposures to PFAS and health outcomes. We are doing this through two community-based studies in Michigan. While these studies are expected to yield important data, additional federal support is needed to further expand on our knowledge of the toxic effects of more of the thousands of PFAS in the environment.

To help predict how PFAS will impact people and resources after being released into the environment, scientists need to know more about the unique ways that PFAS behave in the environment. Existing models used to predict environmental behavior, such as movement of contaminants through soil and groundwater and leaching, are based mostly on studies using other contaminants. Laboratory and field studies have shown that these models are not accurate predictors of PFAS behavior in the environment, pointing to a need for PFAS-specific research and modeling. Better predictive models of PFAS behavior in the environment will enable better decision making to protect

[2] The Michigan PFAS Exposure and Health Study (MiPEHS) is being conducted in the communities of Parchment and Cooper Township in Kalamazoo County and the Belmont/Rockford area in Kent County; the Multi-Site Study (MSS) is a national study in seven communities across the U.S., the communities studies in the MiPEHS.

groundwater, especially in areas where residents rely on this resource for their drinking water.

There is also a need to develop PFAS-specific tools to predict risk based on the presence of PFAS mixtures in the environment, even if a full individual chemical analysis has not been completed for each specific PFAS formulation.

Because of the use of thousands of varieties of PFAS and the increasing analytical capabilities, our ability to accurately measure the presence of PFAS, have greatly outpaced our ability to perform risk assessments for each of these PFAS that are identified in the laboratory data. To help close this gap, research is needed to enable decision makers to protect public health based on chemical similarities among the thousands of PFAS and make reliable predictions about risk, using what we do know about the more-studied PFAS. This kind of research can be used to develop tools to allow regulators and health agencies to reliably predict PFAS characteristics, such as persistence, bioaccumulation, and toxicity, based on known relationships and similarities among PFAS. One such predictive tool is a Quantitative Structure Activity Relationship (QSAR) model. As the study and collection of empirical data for the wide variety of PFAS continues, a robust QSAR will give regulators and public health agencies tools to effectively advise the public and make sound decisions based on existing and available data.

Michigan has been fortunate to have a legislature who has supported the work to identify PFAS and protect public health by appropriating a significant amount of state funding to undertake this work. State funding is best spent on directly addressing contamination issues like cleaning up sites, hooking homes up to safe municipal water, and subsidizing the costs of treatment technology. Federal funding is best spent on research which has the dual purpose of providing benefits to all states while allowing states to focus their limited funding on projects that directly benefit their citizens.

Thank you again for the opportunity to discuss Michigan's leadership on the cutting edge of PFAS mitigation policy at the state level, and to discuss the research needed at the national level moving forward. I welcome hearing from the other witnesses today and I look forward to answering your questions.

If you would like additional information on Michigan's efforts, please visit the MPART website at www.michigan.gov/pfasresponse or see the Attchment below. Thank you.

Attachment:

Additional Information on Michigan's PFAS Actions:

MPART's coordinated strategic approach has led to the following accomplishments:

Public Health:

- Since ingestion via drinking water is the primary route of exposure for our citizens, Michigan systematically sampled all 2700 public water supply systems to determine the occurrence and concentrations of PFAS. This sampling showed that while most of our systems were below the EPA lifetime health advisory level, there were two public systems that were discovered to have concentrations above the health advisory level. Upon finding elevated concentrations in a school and a public water system, Michigan moved swiftly to provide alternate water and work with the systems to identify long term solutions.
- In early 2019, Michigan could not wait to protect our communities and resources and therefore began the process of establishing State Drinking Water Standards or MCLs as allowed under the Safe Drinking Water Act.
- In August 2020, Michigan completed that process and formally established Drinking Water Standards or MCLs for 7 different PFAS under the Michigan Safe Drinking Water Act, which protects our 2700 public water supplies that supplies drinking water for approximately 75% of Michigan residents.
- This past fiscal year, 2,700 public water supplies conducted compliance sampling for PFAS under the Michigan Safe Drinking Water Act.

Identification of PFAS Contamination:

- Developed groundwater cleanup criteria for 7 PFAS, which we are using to hold polluters accountable for cleanup efforts at PFAS sites.
- MPART has identified over 193 MPART sites with one or more of the 7 PFAS compounds exceeding groundwater cleanup standards. For each "MPART site", nearby residential wells are evaluated and sampled if any are determined to be at potential risk.
- Collected precautionary residential drinking water samples in neighborhoods around suspected PFAS sites, which were at risk for groundwater contamination.

Reduction and Elimination of PFAS Sources:

- Took 2,323 samples of our lakes and streams, which we used to track down sources of PFAS.
- Collected over 2,919 fish from our lakes and streams, which we use to issue fish consumption advisories.
- MPART worked with Wastewater Treatment Plants with Industrial Pretreatment Programs to identify potential sources of PFAS and sample their effluent concentrations to determine compliance with Michigan's Water Quality values.
- Requested groundwater sampling at all currently or formerly licensed solid waste landfills with known drinking water wells nearby.

- Awarded grants to 19 airports where firefighting foam (AFFF) was known to have been used, for testing PFAS in groundwater and storm water.
- Removed 51,400 gallons of firefighting foam from Michigan's fire stations and airports as part of a pickup and disposal program.

Collaboration

- MPART has broad collaboration with both federal and states including:
    - A member of the Great Lakes PFAS Taskforce with the Great Lakes St. Lawrence Governors & Premiers and are participating in sub committees on Foam, Wildlife, biosolids and air;
    - Environmental Council of States: PFAS subcommittee
    - Interstate Technology Regulatory Council: PFAS Workgroup
    - EPA coordination meetings with Office of Research and Development
    - New England Interstate Waters Pollution Control Commission for Biosolids collaboration

Public Health Studies:

- Conducted the MIPHES, health study: The Michigan Department of Health and Human Services (MDHHS) is working to identify links between exposures to PFAS and health outcomes. We are doing this through two community-based studies: (1) the Michigan PFAS Exposure and Health Study (MiPEHS) and (2) the Multi-Site Study (MSS). MiPEHS (pronounced: my-pez) is the Michigan PFAS Exposure and Health Study, conducted by MDHHS in the City of Parchment and Cooper Township in Kalamazoo County and the Belmont/Rockford area in Kent County.
- MSS is a study funded by the Centers for Disease Control and Prevention's (CDC) Agency for Toxic Substances and Disease Registry (ATSDR) in seven communities across the United States. ATSDR has partnered with MDHHS to conduct MSS in the same communities as MiPEHS. See the MSS webpage for more details about that study.
- The Michigan Department of Health and Human Services (MDHHS) is doing a research study to see if per-and polyfluoroalkyl substances (PFAS) exposure affects how the immune system responds to COVID-19 vaccines, including antibody production. **Learn more about the PFAS Exposure and Antibody Response to COVID-19 Vaccine Study**.
- The PFOMS (pronounced: p-foams) project is a statewide biomonitoring project focused on Michigan firefighters. The primary purpose of the project is to determine firefighters' average exposure to per- and polyfluoroalkyl substances (PFAS). The findings of the project will help inform decisions about how to minimize firefighters' exposure to PFAS. **Learn more about PFOMS**
- The North Kent County Exposure Assessment is a regional effort that studied the relationship between drinking water with PFAS and the amount in the human body. The research study involves collecting blood samples from people in the northern Kent County area whose drinking water wells were found to have PFAS. **Learn more about the North Kent County Exposure Assessment**.